

No. 8. — *The Echini collected on the Hassler Expedition.* By
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(PUBLISHED BY PERMISSION OF PROF. PEIRCE, SUPT. OF THE U. S. COAST
SURVEY.)

THE following preliminary notice of the Sea-urchins collected by Professor Agassiz and Mr. Pourtalès during the voyage of the *Hassler*, contains a description of the most interesting of the new species collected.

The most valuable collection was made off the Barbadoes, at a depth of one hundred fathoms: a very fine specimen of *Asthenosoma hystrix* was dredged at that point, three young specimens of *Cœlopleurus floridanus*, — the anal plates of two of the specimens of *Cœlopleurus* were preserved, (there are four of them, as in the *Arbaciadae*,) — and a remarkable *Spatangoid* (*Paleopneustes cristatus* A. AG.), noticed in one of the letters of Professor Agassiz to Professor Peirce; this proves to be another of these remarkable cretaceous types already noticed in the Report of the *Echini* of the Straits of Florida. A very good series of specimens of *Hemiaster Philippii* and of *Echinus margaritaceus* were collected on the east coast of Patagonia. In the Straits of Magellan the common species are *Arbacia Dufrenoyi* and *Echinus Magellanicus*; *Schizaster Philippii* was also found. No *Goniocidaris* was collected. Along the west coast of South America no novelties were found, and nothing of special importance was brought home except a very fine specimen of *Astropyga pulvinata* collected at Panama by Lieutenant Cutts. During the stay at the Galapagos a few species of *Echini* were collected, which leave no doubt that the Galapagos form a part of the Panamic District. The following species were collected there: *Cidaris Thouarsii*, *Strongylocentrotus gibbosus*, *Toxopneustes semituberculatus*, *Encope micropora*, *Rhynchopygus pacificus*. None of the East Indian types often credited to those islands were found at the Galapagos, namely, no *Amblypneustes* nor *Temnopleurus*. But we must be careful not to judge from negative evidence, as, notwithstanding the *Hassler* visited so many parts of the west coast of South America,

it is quite remarkable that only single specimens of the two most common species of Echini of that coast, *Strongylocentrotus albus* and *Arbacia nigra*, were brought home.

No species hitherto not noticed from the west coast of Central America, Mexico, or the Gulf of California, or San Francisco, were collected.

During the visit made to Juan Fernandez a few Echini were collected; among them specimens of a small Spatangoid (*Nacospatangus gracilis* A. Ag.) allied to *Micraster* and *Spatangus*. Small specimens of *Echinus margaritaceus* were also collected there; other specimens of the same species were obtained off Cape Dos Bahias, on the east coast of Patagonia. A fine specimen was in the Museum collection previously, from Cape Horn.

A full description and figures of the most interesting species will be given in the Zoölogical Results of the Hassler Expedition.

***Paleopneustes cristatus* A. Ag. (nov. gen. et sp.)**

Seen in profile this species has a remarkable resemblance to some of the forms of *Ananchytes ovata*. Like it, it has neither peripetalous nor anal or subanal fascioles. The actinal surface is nearly flat, the anterior extremity rounded, with no trace of indentation for the anterior ambulacrum, which consists, as in *Ananchytes*, of slightly diverging zones, with a pair of pores piercing the centre of each ambulacral plate. The abactinal system is, however, compact, as in *Spatangus*, and the lateral ambulacra form imperfect petals, diverging, extending half-way from apex to edge of the test, terminating abruptly, and very slightly depressed below the level of the test. The vertex corresponds to the apical system, and is nearly central. The anal system is large, circular, and placed close to the edge of the test in the truncated posterior extremity of the test. The lateral petals are continued by distant pairs of pores in the centre of the ambulacral plates to the actinostome. The actinal ambulacra form broad avenues on each side of the triangular elongate plastron. The actinostome is transverse, narrow, with a very prominent posterior lip. The upper part of the test is covered by distant tubercles of uniform size, arranged in regular

horizontal lines; they are more closely packed and larger on the actinal surface. On the upper part of the test the spines are straight, short, comparatively stout. They are large, slightly curved at the base, and spatulate at the actinal sides. The apical part of the anterior interambulacrum carries a cluster of longer spines closely packed together, forming a sort of tuft. The spines of the abactinal part of the test resemble at first glance much more those of the regular Echini than those of the Spatangoids, standing out from the test in all possible directions, and not having a general direction as is usually the case in Spatangoids. The color when alive was of a dark violet.

This genus differs from *Asterostoma* only in the absence of actinal ambulacral furrows and in having a labiate actinostome instead of the pentagonal sunken mouth represented in the poorly preserved specimens of *Asterostoma*.

100 fathoms off Barbadoes.

***Nacospatangus gracilis* A. Ag. (nov. gen. et sp.)**

Off Juan Fernandez in 65 fathoms was dredged a small Spatangoid (17 m.m. long), which will form the type of a subgenus of *Spatangus* intermediate between *Maretia* and *Micraster*. It has the high test of *Maretia* alta, vertex posterior; in the anterior lateral ambulacral petal the abactinal part of the anterior poriferous zone is obliterated, the posterior petals are as in *Maretia*. The anal extremity of the test resembles that of *Spatangus* proper, but the whole test is covered, as in *Micraster*, with uniform tubercles; the genus resembles those species of *Micraster* which have a subanal fasciole. In this genus the subanal fasciole is heart-shaped, and sends off an anal branch. The whole surface of the test is covered by silvery-gray short curved spines, somewhat longer on the actinal side, especially towards the posterior extremity of the actinal plastron.

A very fine series of *Hemiaster Philippii* A. Ag. (Lövén's *Abatus Philippii* MS. taken by Kinberg off La Plata). This is extremely interesting, as showing how with increasing age the lateral ambulacra, which in young stages (18 mm. long) are slightly depressed, gradually become more and more sunken, till in specimens measuring 40 mm. in length the lateral ambulacra, especially the anterior, are deeply sunken, much as in *Triplylus*. The peripetalous fasciole does not vary greatly in outline or breadth, and this species is readily distinguished from *H. australis* by the short posterior lateral ambulacra, and the narrow peripetalous fasciole.

Very small specimens show this species to go through changes similar to those of *Brissopsis*. They are quite cylindrical when measuring about 75. mm. in length.

Lat. $37^{\circ} 42'$ S. Long. $56^{\circ} 20'$ W. 44 fathoms.

Lat. 51 26 " 68 56 55 fathoms.

Off Cape Dos Bahias 55 fathoms. E. coast of Patagonia.

CAMBRIDGE, January, 1873.